

CEDARs hardware status

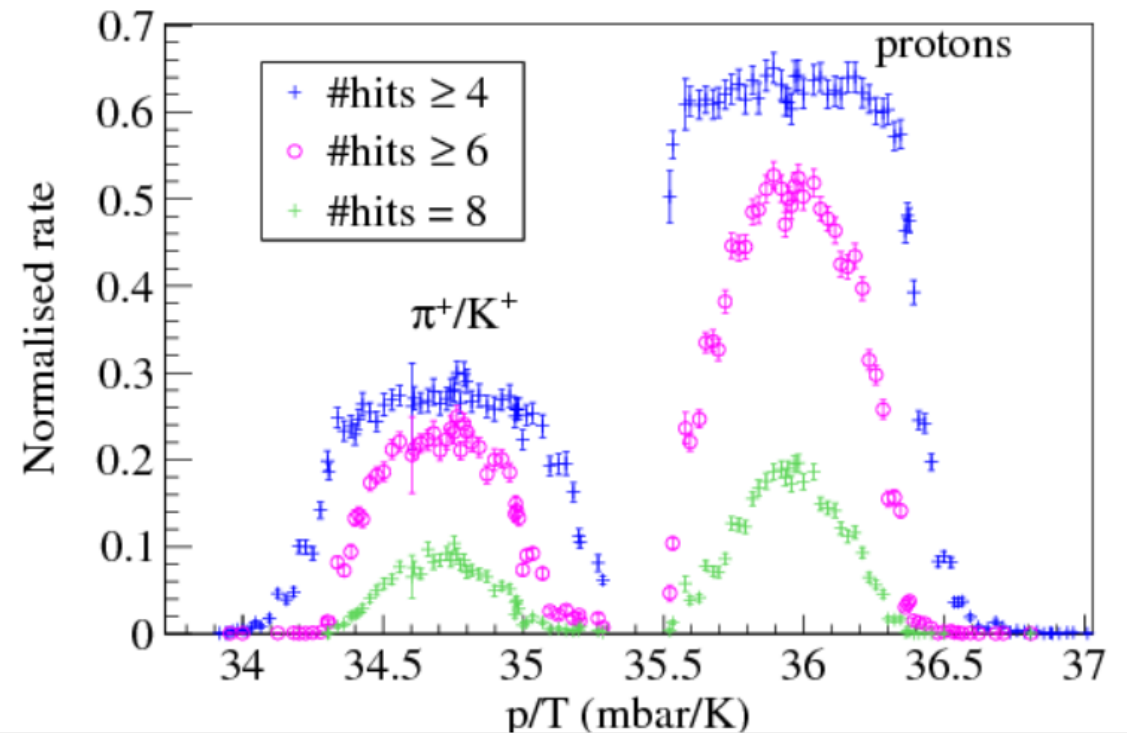
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Antiproton requirements

- Beam intensity $5 \cdot 10^5$ p/s (2009 – $5 \cdot 10^6$)
- Tagging protons

Beam Mom [GeV/c]	π^+	K^+	p
60	64.6 ± 0.8	9.7 ± 0.2	23.4 ± 0.6
120	42.8 ± 0.5	7.2 ± 0.08	49.0 ± 0.7
200	17.5 ± 0.5	3.44 ± 0.10	79.0 ± 0.9
300	2.01 ± 0.04	0.641 ± 0.012	97.3 ± 0.5



Modifications required

- Fix (redo) the gain monitoring system (light source, internal PMT fibers) – was not working in 2019, so not tested (iFTDC part too)
- Discriminators (minor redesign) – additional shielding, addition of baseline restorer,
- *Change signal cables to a lower attenuation version (optional)*
- Move CEDAR rack out of beamline – problems mostly for TDCs and power supplies (HV has already been moved), discriminators are mostly analog and we seen no apparent problems,
- Need to have a on-line scalers readout for CEDAR alignment with OR of all channels in a single PMT,
- *Minor – update interface boards for TDCs (fix the mistake with connectors)*
- Find the source of EM shower particles found in top half PMTs of CEDAR1
- More spare PMT bases (at least 16 pcs)
 - Sensitive parts: active HV divider, output amplifier
 - All run flawlessly in DY 2018, so extra spares as a precaution

If SciFi55 (Warsaw) is used

- Need to have a new HV modules – for DY we used HV modules from SciFi 55 as it was not used, like in 2009.
- We also need spare 12 ch, min. 1200V, negative

ToDo

- Check PMTs for afterpulsing
- Design new discriminators (revision)
- Design new carrier cards (revision)
- Software tools for alignment

In Progress

- Purchasing parts for discriminators (based on old BOM)
- Purchasing parts for spare bases

Budget

- No plan to apply for money dedicated for CEDARs, will use statutory funds
- Travel budget may be a problem

Plans

- Make a new alignment manual
- Need to have a tools for quick data reconstruction for CEDAR check (like pressure scan with curves for each PMT from data with coincidence)

Human resources

R. Kurjata, M. Ziembicki and B.Piotrowski (technician)